

THAT WHICH IS CLAIMED:

1. An isolated polypeptide having an amino acid sequence selected from the group consisting of:
- 5 (a) The amino acid sequence shown in SEQ ID NOS:1, 3, 5, 7, and 9;
- (b) The amino acid sequence encoded by the cDNA contained in ATCC Deposit Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_;
- (c) The amino acid sequence of an allelic variant of the amino acid sequence shown in SEQ ID NOS:1, 3, 5, 7, and 9;
- 10 (d) The amino acid sequence of an allelic variant of the amino acid sequence encoded by the cDNA contained in ATCC Deposit Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_;
- (e) The amino acid sequence of a sequence variant of the amino acid sequence shown in SEQ ID NOS:1, 3, 5, 7, and 9, wherein the sequence variant is encoded by a nucleic acid molecule hybridizing to the nucleic acid molecule shown in
- 15 SEQ ID NOS:2, 4, 6, 8, and 10, under stringent conditions;
- (f) The amino acid sequence of a sequence variant of the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_, wherein the sequence variant is encoded by a nucleic acid
- 20 molecule hybridizing under stringent conditions to the cDNA contained in ATCC Deposit Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_;
- (g) A fragment of the amino acid sequence shown in SEQ ID NO:1 wherein the fragment comprises at least 9 contiguous amino acids;
- (h) A fragment of the amino acid sequence encoded by the cDNA contained
- 25 in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 9 contiguous amino acids;
- (i) A fragment of the amino acid sequence shown in SEQ ID NO:3, wherein the fragment comprises at least 21 contiguous amino acids;
- (j) A fragment of the amino acid sequence encoded by the cDNA contained
- 30 in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 21 contiguous amino acids;

(k) A fragment of the amino acid sequence shown in SEQ ID NO:5 wherein the fragment comprises at least 7 contiguous amino acids

(l) A fragment of the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 7 contiguous amino acids;

(m) A fragment of the amino acid sequence shown in SEQ ID NO:7, wherein the fragment comprises at least 14 contiguous amino acids

(n) A fragment of the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 14 contiguous amino acids;

(o) A fragment of the amino acid sequence shown in SEQ ID NO:9 wherein the fragment comprises at least 7 contiguous amino acids;

(p) A fragment of the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 7 contiguous amino acids;

(q) The amino acid sequence of the mature polypeptide from about amino acid 16 to the last amino acid shown in SEQ ID NO:5;

(r) The amino acid sequence of the mature polypeptide from about amino acid 16 to the last amino acid encoded by the cDNA clone contained in ATCC Deposit No. \_\_\_\_\_;

(s) The amino acid sequence of an epitope bearing region of any one of the polypeptides of (a)-(r).

2. An isolated antibody that selectively binds to a polypeptide of claim 1, (a)-(s).

3. An isolated nucleic acid molecule having a nucleotide sequence selected from the group consisting of:

(a) The nucleotide sequence shown in SEQ ID NOS:2, 4, 6, 8, and 10;

(b) The nucleotide sequence in the cDNA contained in ATCC Deposit Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_;

(c) A nucleotide sequence encoding the amino acid sequence shown in SEQ ID NOS:1, 3, 5, 7, and 9;

(d) A nucleotide sequence encoding the amino acid sequence encoded by the cDNA contained in ATCC Deposit Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_; and

5 (e) A nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), or (d).

4. An isolated nucleic acid molecule having a nucleotide sequence selected from the group consisting of:

10 (a) A nucleotide sequence encoding an amino acid sequence of a sequence variant of the amino acid sequence shown in SEQ ID NOS:1, 3, 5, 7, and 9 that hybridizes to the nucleotide sequence shown in SEQ ID NOS:2, 4, 6, 8, and 10 under stringent conditions;

(b) A nucleotide sequence encoding the amino acid sequence of a sequence  
15 variant of the amino acid sequence encoded by the cDNA contained in ATCC Deposit Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_, the nucleic acid sequence of the sequence variant hybridizing to the cDNA contained in ATCC Deposit Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ under stringent conditions; and

(c) A nucleotide sequence complementary to either of the nucleotide  
20 sequences in (a) or (b).

5. An isolated nucleic acid molecule having a nucleotide sequence selected from the group consisting of:

(a) A nucleotide sequence encoding a fragment of the amino acid sequence  
25 shown in SEQ ID NO:1, wherein the fragment comprises at least 9 contiguous amino acids;

(b) A nucleotide sequence encoding a fragment of the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 9 contiguous amino acids;

(c) A nucleotide sequence encoding a fragment of the amino acid sequence shown in SEQ ID NO:3, wherein the fragment comprises at least 21 contiguous amino acids;

5 (d) A nucleotide sequence encoding a fragment of the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 21 contiguous amino acids;

(e) A nucleotide sequence encoding a fragment of the amino acid sequence shown in SEQ ID NO:5, wherein the fragment comprises at least 7 contiguous amino acids;

10 (f) A nucleotide sequence encoding a fragment of the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 7 contiguous amino acids;

(g) A nucleotide sequence encoding a fragment of the amino acid sequence shown in SEQ ID NO:7, wherein the fragment comprises at least 14 contiguous amino  
15 acids;

(h) A nucleotide sequence encoding a fragment of the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 14 contiguous amino acids;

(i) A nucleotide sequence encoding a fragment of the amino acid sequence shown in SEQ ID NO:9, wherein the fragment comprises at least 7 contiguous amino  
20 acids;

(j) A nucleotide sequence encoding a fragment of the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. \_\_\_\_\_, wherein the fragment comprises at least 7 contiguous amino acids;

25 (k) A nucleotide sequence complementary to either of the nucleotide sequences in (a-j).

6. A nucleic acid vector comprising the nucleic acid sequences in any of  
claims 3-5.

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7. A host cell containing the vector of claim 6.

8. A method for producing any of the polypeptides in claim 1 comprising introducing a nucleotide sequence encoding any of the polypeptide sequences in (a)-(s) into a host cell, and culturing the host cell under conditions in which the proteins are expressed from the nucleic acid.

9. A method for detecting the presence of any of the polypeptides in claim 1 in a sample, said method comprising contacting said sample with an agent that specifically allows detection of the presence of the polypeptide in the sample and then detecting the presence of the polypeptide.

10. The method of claim 9, wherein said agent is capable of selective physical association with said polypeptide.

11. The method of claim 10, wherein said agent binds to said polypeptide.

12. The method of claim 11, wherein said agent is an antibody.

13. The method of claim 11, wherein said agent is a substrate or coenzyme.

14. A kit comprising reagents used for the method of claim 9, wherein the reagents comprise an agent that specifically binds to said polypeptide.

15. A method for detecting the presence of any of the nucleic acid molecules in any of claims 3-5 in a sample, the method comprising contacting said sample with an agent that specifically allows detection of the presence of the nucleic acid molecule in the sample and then detecting the presence of the nucleic acid molecule.

16. The method of claim 15, wherein said method comprises contacting the sample with an oligonucleotide that hybridizes to the nucleic acid sequences under stringent conditions and determining whether the oligonucleotide binds to the nucleic acid sequence in the sample.

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17. The method of claim 15, wherein the nucleic acid, whose presence is detected, is mRNA.

18. A kit comprising reagents used for the method of claim 15, wherein the reagents comprise a compound that hybridizes under stringent conditions to any of the nucleic acid molecules.

19. A method for identifying an agent that interacts with any of the polypeptides of claim 1 in a cell, said method comprising contacting said agent with a cell capable of allowing an interaction between said polypeptide and said agent such that said polypeptide can interact with said agent and measuring the interaction.

20. A method of screening a cell to identify an agent that interacts with any of the polypeptides of claim 1 in a cell, said method comprising contacting said agent with a cell capable of allowing an interaction between said polypeptide and said agent such that said polypeptide can interact with said agent, and measuring the interaction.

21. A method for identifying an agent that binds to any of the polypeptides in claim 1, said method comprising contacting the polypeptide with an agent that binds to the polypeptide and assaying the complex formed with the agent bound to the polypeptide.

22. The method of claim 21, wherein a fragment of the polypeptide is contacted.

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23. A method of screening a cell to identify an agent that modulates the level or activity of any of the polypeptides of claim 1 in a cell, said method comprising: contacting said agent with a cell capable of expressing said polypeptide such that said polypeptide level or activity can be modulated in said cell by said agent  
5 and measuring said polypeptide level or activity.

24. The method of claim 23 wherein said cell is derived from a tissue selected from the group consisting of brain, kidney, liver, colon, small intestine, muscle, lung, breast, and testes and said polypeptide is set forth in SEQ ID NO:1.  
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25. The method of claim 23 wherein said agent increases the level or activity of said polypeptide.

26. The method of claim 23 wherein said agent decreases the level or  
15 activity of said polypeptide.

27. The method of claim 19, said method comprising: (1) exposing said agent to said polypeptide under conditions that allow said agent to interact with said polypeptide; (2) adding competing polypeptide that can interact with said agent; and  
20 (3) comparing the amount of interaction between said agent and said polypeptide to the amount of interaction in the absence of said competing polypeptide.

28. The method of claim 19 wherein said interaction is binding.

29. The method of claim 23 wherein said agent increases interaction  
25 between said polypeptide and a target molecule for said polypeptide, said method comprising: combining said polypeptide with said agent under conditions that allow said polypeptide to interact with said target molecule; and detecting the formation of a complex between said polypeptide and said target molecule or activity of said  
30 polypeptide as a result of interaction of said polypeptide with said target molecule.

30. The method of claim 23 wherein said agent decreases interaction between said polypeptide and a target molecule for said polypeptide, said method comprising: combining said polypeptide with said agent under conditions that allow said polypeptide to interact with said target molecule; and detecting the formation of a complex between said polypeptide and said target molecule or activity of said polypeptide as a result of interaction of said polypeptide with said target molecule.

31. The method of claim 23 wherein said cell is *in vivo*.

32. The method of claim 31 wherein said cell is in a transgenic animal.

33. The method of claim 31 wherein said cell is in a non-transgenic subject.

34. The method of claim 23 wherein said cell is *in vitro*.

35. The method of claim 34 wherein said cell has been disrupted.

36. The method of claim 34 wherein said cell is in a biopsy.

37. The method of claim 35 wherein said cell is in cell culture.

38. The method of claim 37 wherein said cell is naturally-occurring or recombinant.

39. The method of claim 23 wherein said agent is selected from the group consisting of a substrate; coenzyme; peptide; phosphopeptide; antibody; organic molecule; and inorganic molecule.



40. A method for modulating the level or activity of any of the polypeptides of claim 1, said method comprising contacting said polypeptide with an agent under conditions that allow the agent to modulate the level or activity of the polypeptide.

41. A method for identifying an agent that modulates the level or activity of any of the polypeptides of claim 1 in a cell, said method comprising contacting said agent with a cell capable of expressing said polypeptide such that said polypeptide level or activity can be modulated in said cell by said agent and measuring said polypeptide level or activity.

42. A method for identifying an agent that modulates the level or activity of any of the nucleic acid molecules of claims 3-5 in a cell, said method comprising contacting said agent with the cell capable of expressing said nucleic acid molecule such that said nucleic acid molecule level or activity can be modulated in said cell by said agent and measuring said nucleic acid molecule level or activity.

43. A method of screening a cell to identify an agent that modulates the level or activity of any of the nucleic acid molecules in claims 3-5 in said cell, said method comprising contacting said agent with the cell capable of expressing said nucleic acid molecule such that said nucleic acid molecule level or activity can be modulated in said cell by said agent and measuring nucleic acid molecule level or activity.

44. A method for identifying an agent that interacts with any of the nucleic acid molecules of claims 3-5 in a cell, said method comprising contacting said agent with a cell capable of allowing an interaction between said nucleic acid molecule and said agent such that said nucleic acid molecule can interact with said agent in measuring the interaction.

45. A method of screening a cell to identify an agent that interacts with any of the nucleic acid molecules of claims 3-5 in a cell, said method comprising contacting said agent with a cell capable of allowing an interaction between said nucleic acid molecule and said agent such that said nucleic acid molecule can interact  
5 with said agent and measuring the interaction.

46. A method for modulating the level or activity of any of the nucleic acid molecules of claims 3-5, said method comprising contacting said nucleic acid molecule with an agent under conditions that allow the agent to modulate the level or  
10 activity of the nucleic acid molecule.

47. The method of claim 46 wherein said modulation is in cells derived from tissue selected from the group consisting of brain, kidney, liver, colon, small intestine, muscle, lung, breast, and testes and said polypeptide is set forth in SEQ ID  
15 NO:1.

48. The method of claim 46 wherein said modulation is *in vivo*.

49. The method of claim 48 wherein said modulation is in a subject having or predisposed to having a disorder involving brain, kidney, liver, colon, small intestine, muscle, lung, breast, and testes and said polypeptide is set forth in SEQ ID  
20 NO:1.

50. The method of claim 49 wherein said modulation is in a subject having or predisposed to having breast, lung, colon, or liver cancer and said polypeptide is set forth in SEQ ID NO:1.  
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51. The method of claim 40 wherein said modulation is in a subject having or predisposed to having esophageal cancer, oral cancer, gastrointestinal cancer or  
30 male sterility.

52. A method of treating a disorder involving brain, kidney, liver, colon, small intestine, muscle, lung, breast, and testes in a subject in need of such treatment, said method comprising administering any of the polypeptides of SEQ ID NO:1 in claim 1 to said subject in a therapeutically effective amount.

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53. A method of treating breast, liver, lung, or colon cancer in a subject in need of such treatment, said method comprising administering any of the polypeptides of SEQ ID NO:1 in claim 1 to said subject in therapeutically effective amounts.

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54. A pharmaceutical composition containing any of the polypeptides in claim 1 in a pharmaceutically acceptable carrier.

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55. A pharmaceutically acceptable composition containing any of the nucleic acid molecules of claims 3-5 in a pharmaceutically acceptable carrier.

56. A nonhuman transgenic animal wherein one or more cells of said animal contains any of the nucleic acid sequences of claims 3-5.

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57. A nonhuman transgenic animal wherein one or more cells of said animal contains any of the nucleic acid sequences of claims 3-5, wherein said cell expresses any of the polypeptides of claim 1.

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58. A method for producing a transgenic animal according to claim 56, said method comprising introducing any of the nucleic acid sequences of claims 3-5 into a cell, wherein said cell is present in said animal or gives rise to said animal.

59. An agent identified by any of the methods of claims 19-39.

60. An agent identified by any of the methods of claims 41-45.

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